

Claims

What is claimed is:

1. A data storage device stabilization mechanism for a servo track writing (STW) nest,
5 wherein the data storage device includes data storage discs that rotate about an disc rotation axis,
the stabilization mechanism comprising:
a baseplate;
at least two fixed restraints on the baseplate adapted to receive and position a data storage
device on the baseplate; and
10 at least two clamps on the baseplate, the clamps operable to move between a first
position, wherein the clamps engage a data storage device positioned on the baseplate by the
fixed restraints and apply a restraining force on the data storage device in a direction
perpendicular to the disc rotation axis to dampen rotational movement of the data storage device
relative to the baseplate, and a second position, wherein the clamps do not engage the data
15 storage device positioned on the baseplate.
2. The apparatus of claim 1, wherein the at least two clamps apply the restraining force
against different sides of the data storage device.
- 20 3. The apparatus of claim 1, wherein the clamps each comprise:
a solenoid activated plunger coupled to a cam, the cam coupled to a clamp member, the
solenoid operable to move the cam and thereby causing the clamp to move between the first
position and the second position.
- 25 4. The apparatus of claim 3, wherein the clamp member includes a solid dampener that
contacts the data storage device when the clamp is in the first position.
5. The apparatus of claim 1 further comprising:
a means for dampening selected frequencies based on characteristics of the data storage
30 device.
6. The apparatus of claim 5, wherein the selected frequencies include electromagnetic
switching frequencies that are generated by a motor controller in the data storage device.

7. The apparatus of claim 2, wherein the clamps are opposed and apply force in opposite directions.

8. The apparatus of claim 1, wherein each clamp is in opposition to another clamp such
5 that each clamp exerts force in the direction of an opposing clamp.

9. The apparatus of claim 1, wherein each clamp is aligned in opposition to an opposed fixed restraint.

10 10. A method of writing servo tracks on a data storage disc in a data storage device, the data storage device having at least one data storage disc that rotates about a disc rotation axis, the method comprising:

positioning the data storage device in a servo track writer nest;

15 applying a first clamping force on the data storage device in a direction perpendicular to the disc rotation axis to prevent rotation of the data storage device relative to the servo track writer nest; and

writing a plurality of servo tracks on the at least one data storage disc.

11. The method of claim 10, wherein the positioning operation further comprises:
20 receiving the data storage device in a carriage; and
placing the carriage on a baseplate in the servo track writer nest.

12. The method of claim 10 further comprising:
25 applying a second clamping force on the data storage device in a different direction perpendicular to the disc rotation axis.

13. A baseplate portion of a servo track writer nest for writing servo tracks on a data storage device comprising:

at least one fixed positioning member on the baseplate for positioning the data storage device in a preferred location; and

5 and at least one clamp mechanism on the baseplate spaced from the at least one fixed positioning member and adjacent the preferred location, the clamp mechanism including:

a solenoid attached to the baseplate;

10 a cam member operatively coupled to the solenoid and retained in a cam slot on the baseplate such that operation of the solenoid moves the cam member within the cam slot, the cam member having a driving face;

a clamp member adjacent to the cam member, the clamp member having a contact face, a pivot and a cam face in contact with the driving face of the cam member, the clamp member rotatably mounted to the baseplate via the pivot; and

15 wherein operation of the solenoid moves the cam member between a first position and a second position, when in the first position the cam member forces the clamp member to rotate about the pivot causing the contact face to apply a biasing force against a data storage device positioned in the nest, when in the second position the cam member allows the clamp member to pivot into a
20 disengaged position.

14. The baseplate portion of claim 13, wherein the data storage device includes at least one data storage disc that rotates about a disc axis and wherein the direction of the biasing force is perpendicular to the disc axis.

25

15. The baseplate portion of claim 13, wherein the at least one clamping mechanism comprises two clamping mechanisms.

16. The baseplate portion of claim 15, wherein the two clamping mechanisms apply
30 biasing forces in opposing directions and are on opposite sides of the preferred location.

17. The baseplate portion of claim 13, wherein the clamping mechanism further comprises:

a spring member coupled to the clamp member, the spring member applying a force that returns the clamp member to the disengaged position when the cam is in the second position.

5

18. A servo track writing nest comprising:

a carriage for receiving a data storage device and placing the data storage device on a baseplate; and

a means mounted on the baseplate for preventing rotational movement of the data storage device relative to the baseplate.

10

19. The servo track writing nest of claim 18, wherein the data storage device includes at least one data storage disc that rotates about a disc axis, and wherein the means for preventing the rotational movement comprises at least one cam operated clamp mounted on the baseplate, the cam operated clamp movable between a first position of engaging the data storage device to apply force in a direction perpendicular to the disc axis and a second position wherein the clamp does not engage the data storage device.

15

20. The servo track writing nest of claim 19, wherein the means for preventing the rotational movement comprises:

20

a first clamp adapted to engage the data storage device and to apply force to a data storage device in a first direction perpendicular to the axis; and

a second clamp spaced from the first clamp and adapted to apply force to the data storage device in a second direction different from the first direction.

25